

General

Title

Diagnostic imaging: percentage of patients undergoing a screening mammogram whose information is entered into a reminder system with a target due date for the next mammogram.

Source(s)

American College of Radiology (ACR), American Medical Association-convened Physician Consortium for Performance Improvement® (PCPIA®), National Committee for Quality Assurance (NCQA). Diagnostic imaging performance measurement set. Reston (VA): American College of Radiology (ACR); 2015 Feb. 58 p. [89 references]

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Process

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percentage of patients undergoing a screening mammogram whose information is entered into a reminder system with a target due date for the next mammogram.

Rationale

Although screening mammograms can reduce breast cancer mortality by 20% to 35% in women aged 40 years and older, recent evidence shows that only 72% of women are receiving mammograms based on current guideline recommendations (Centers for Disease Control and Prevention [CDC], 2012). The use of patient reminders is associated with an increase in screening mammography (Sabatino et al., 2012; Gardner, Adams, & Jeffreys, 2013). Encouraging the implementation of a reminder system could lead to an increase in mammography screening at appropriate intervals.

The following evidence statements are quoted verbatim from the referenced clinical guidelines and other references:

The Community Preventive Services Task Force (CPSTF) recommends the use of client reminders to increase screening for breast and cervical cancers on the basis of strong evidence and effectiveness (CPSTF, 2012).

The U.S. Preventive Services Task Force (USPSTF) recommends against screening mammography in women aged 40 to 49 years. The decision to start regular, biennial screening mammography before the age of 50 years should be an individual one and take into account patient context, including the patient's values regarding specific benefits and harms (USPSTF, 2009).

The USPSTF recommends biennial screening mammography for women between the ages of 50 and 74 years (USPSTF, 2009).

Indications:

Screening Mammography

Annually for asymptomatic women age 40 and older who are at average risk for breast cancer

Asymptomatic women under age 40 who are at increased risk for breast cancer

Woman with known mutation or genetic syndrome with increased breast cancer risk: yearly starting by age 30, but not before age 25

Untested woman with a first-degree relative with known BRCA mutation: yearly starting by age 30, but not before age 25

Woman with a 20% or greater lifetime risk for breast cancer based on breast cancer risk models: yearly starting by age 30, but not before age 25, or 10 years earlier than the age at which the youngest first-degree relative was diagnosed, whichever is later

Woman with a history of chest (mantle) radiation received between the ages of 10 and 30: yearly starting 8 years after the radiation therapy, but not before age 25

Woman with biopsy-proven lobular neoplasia, atypical ductal hyperplasia (ADH), ductal carcinoma in-situ (DCIS), invasive breast cancer, or ovarian cancer: yearly from time of diagnosis, regardless of age (American College of Radiology [ACR], 2013).

Age at which annual mammography screening should end.

There is no defined upper age limit at which mammography may not be beneficial.

Screening with mammography should be considered as long as the patient is in good health and is willing to undergo additional testing, including biopsy, if an abnormality is detected (ACR, 2013).

Evidence for Rationale

American College of Radiology (ACR), American Medical Association-convened Physician Consortium for Performance Improvement® (PCPIA®), National Committee for Quality Assurance (NCQA). Diagnostic imaging performance measurement set. Reston (VA): American College of Radiology (ACR); 2015 Feb. 58 p. [89 references]

American College of Radiology (ACR). ACR practice guideline for the performance of screening and diagnostic mammography. Reston (VA): American College of Radiology (ACR); 2013 Oct. 11 p.

Centers for Disease Control and Prevention (CDC). Cancer screening - United States, 2010. MMWR Morb Mortal Wkly Rep. 2012 Jan 27;61(3):41-5. [PubMed](#)

Community Preventive Services Task Force. Updated recommendations for client- and provider-oriented interventions to increase breast, cervical, and colorectal cancer screening. Am J Prev Med. 2012 Jul;43(1):92-6. [PubMed](#)

Gardner MP, Adams A, Jeffreys M. Interventions to increase the uptake of mammography amongst low income women: a systematic review and meta-analysis. PLoS ONE. 2013;8(2):e55574. [PubMed](#)

Sabatino SA, Lawrence B, Elder R, Mercer SL, Wilson KM, DeVinney B, Melillo S, Carvalho M, Taplin S, Bastani R, Rimer BK, Vernon SW, Melvin CL, Taylor V, Fernandez M, Glanz K, Community Preventive Services Task Force. Effectiveness of interventions to increase screening for breast, cervical, and colorectal cancers: nine updated systematic reviews for the guide to community preventive services. Am J Prev Med. 2012 Jul;43(1):97-118. [PubMed](#)

U.S. Preventive Services Task Force. Screening for breast cancer: U.S. Preventive Services Task Force recommendation statement. Ann Intern Med. 2009 Nov 17;151(10):716-26. [PubMed](#)

Primary Health Components

Screening mammography; patient reminder system

Denominator Description

All patients undergoing a screening mammogram

Numerator Description

Patients whose information is entered into a reminder system with a target due date for the next mammogram (see the related "Numerator Inclusions/Exclusions" field)

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A clinical practice guideline or other peer-reviewed synthesis of the clinical research evidence

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and organizational sciences

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Additional Information Supporting Need for the Measure

Importance of Topic

As imaging technology continues to advance, the United States healthcare system has seen an increase in both the type and frequency of imaging studies being performed. The increase in utilization of imaging studies is accompanied by a corresponding increase in cost and exposure to radiation for both patients and healthcare professionals.

From 1980 to 2006, the number of radiologic procedures performed in the United States showed a ten-fold increase while the annual per-capita effective dose from radiologic and nuclear medicine procedures increased by 600% (Mettler et al., 2009).

From 1996 to 2010, the number of computerized tomographic (CT) examinations tripled, while the number of ultrasounds nearly doubled (Smith-Bindman et al., 2012).

From 1996 to 2010, advanced diagnostic imaging (i.e., CT, magnetic resonance imaging [MRI],

nuclear medicine, and ultrasound) accounted for approximately 35% of all imaging studies (Smith-Bindman et al., 2012).

From 1980 to 2006, the proportion of radiation exposure that is attributable to medical sources increased from 17% to 53% (Mettler et al., 2009).

In 2006, while CT scans only accounted for approximately 17% of all radiologic procedures performed in the United States, they accounted for over 65% of the total effective radiation dose from radiologic procedures (Mettler et al., 2009).

In 2006, the estimated per-capita effective radiation dose for radiologic procedures in the United States was nearly 20% higher than the average for other well-developed countries (Mettler et al., 2009).

Diagnostic imaging was prioritized as a topic area for measure development due to a high level of utilization, rising costs, and the need for measures to help promote appropriate use of imaging and improve outcomes.

Opportunity for Improvement

Many American women do not receive mammograms at recommended intervals, as illustrated by 2010 data from the National Health Interview Survey (NHIS) (Centers for Disease Control and Prevention [CDC], 2012), which found that only 72% of women reported receiving a mammogram within the recommended two-year interval. Additional factors found to reduce the likelihood for a woman to receive a mammogram include Asian race, low education status, and recent immigrant status. Low mammography use was also noted for women who reported having no regular source of medical care or having no medical insurance (CDC, 2012).

Evidence for Additional Information Supporting Need for the Measure

American College of Radiology (ACR), American Medical Association-convened Physician Consortium for Performance Improvement® (PCPI®), National Committee for Quality Assurance (NCQA). Diagnostic imaging performance measurement set. Reston (VA): American College of Radiology (ACR); 2015 Feb. 58 p. [89 references]

Centers for Disease Control and Prevention (CDC). Cancer screening - United States, 2010. MMWR Morb Mortal Wkly Rep. 2012 Jan 27;61(3):41-5. [PubMed](#)

Mettler FA, Bhargavan M, Faulkner K, Gilley DB, Gray JE, Ibbott GS, Lipoti JA, Mahesh M, McCrohan JL, Stabin MG, Thomadsen BR, Yoshizumi TT. Radiologic and nuclear medicine studies in the United States and worldwide: frequency, radiation dose, and comparison with other radiation sources--1950-2007. Radiology. 2009 Nov;253(2):520-31. [PubMed](#)

Smith-Bindman R, Miglioretti DL, Johnson E, Lee C, Feigelson HS, Flynn M, Greenlee RT, Kruger RL, Hornbrook MC, Roblin D, Solberg LI, Vanneman N, Weinmann S, Williams AE. Use of diagnostic imaging studies and associated radiation exposure for patients enrolled in large integrated health care systems, 1996-2010. JAMA. 2012 Jun 13;307(22):2400-9. [PubMed](#)

Extent of Measure Testing

The American Medical Association (AMA)-convened Physician Consortium for Performance Improvement (PCPI) collaborated on a measure testing project in 2011 with Telligen to ensure four radiology measures were reliable and evaluated for accuracy of the measure numerator, denominator, and exception case identification. The testing project was conducted utilizing electronic health record data and claims data. Inter-rater reliability was tested. Three sites in three states participated in the testing of the measures. All three sites were in urban settings. Site A was a group practice with 10 physicians. Site B was a hospital-based group practice with 90 physicians. Site C was a hospital-based practice with greater than 1000 physicians.

Reliability Testing

The purpose of reliability testing was to evaluate whether the measure definitions and specifications, as prepared by the PCPI, yield stable, consistent measures. Data abstracted from chart records were used to calculate inter-rater reliability for the measures.

Some of the measures in this set are being made available without any prior testing. The PCPI recognizes the importance of testing all of its measures and encourages testing of the diagnostic imaging measurement set for feasibility and reliability by organizations or individuals positioned to do so. The *Measure Testing Protocol for PCPI Measures* was approved by the PCPI in 2010 and is available on the PCPI Web site (see Position Papers at www.physicianconsortium.org); interested parties are encouraged to review this document and to contact PCPI staff. The PCPI will welcome any opportunity to promote the initial testing of these measures and to ensure that any results available from testing are used to refine the measures before implementation.

Evidence for Extent of Measure Testing

American College of Radiology (ACR), American Medical Association-convened Physician Consortium for Performance Improvement® (PCPI®), National Committee for Quality Assurance (NCQA). Diagnostic imaging performance measurement set. Reston (VA): American College of Radiology (ACR); 2015 Feb. 58 p. [89 references]

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Ambulatory/Office-based Care

Ambulatory Procedure/Imaging Center

Hospital Inpatient

Hospital Outpatient

Long-term Care Facilities - Other

Skilled Nursing Facilities/Nursing Homes

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Individual Clinicians or Public Health Professionals

Statement of Acceptable Minimum Sample Size

Does not apply to this measure

Target Population Age

Unspecified

Target Population Gender

Female (only)

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Health and Well-being of Communities

Person- and Family-centered Care

Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Data Collection for the Measure

Case Finding Period

Unspecified

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Diagnostic Evaluation

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions

All patients undergoing a screening mammogram

Exclusions

Unspecified

Exceptions

Medical reasons for not entering patient information into a reminder system (e.g., further screening mammograms are not indicated, other medical reason[s])

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions

Patients whose information is entered into a reminder system* with a target due date for the next mammogram

*The reminder system should be linked to a process for notifying patients when their next mammogram is due and should include the following elements at a minimum: patient identifier, patient contact information, date(s) of prior screening mammogram(s) (if known), and the target due date for the next mammogram.

Exclusions

Unspecified

Numerator Search Strategy

Fixed time period or point in time

Data Source

Administrative clinical data

Electronic health/medical record

Imaging data

Paper medical record

Type of Health State

Does not apply to this measure

Instruments Used and/or Associated with the Measure

Unspecified

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a higher score

Allowance for Patient or Population Factors

not defined yet

Standard of Comparison

not defined yet

Identifying Information

Original Title

Measure #3: reminder system for screening mammograms.

Measure Collection Name

Diagnostic Imaging Performance Measurement Set

Submitter

American College of Radiology - Medical Specialty Society

Developer

American College of Radiology - Medical Specialty Society

National Committee for Quality Assurance - Health Care Accreditation Organization

Physician Consortium for Performance Improvement® - Clinical Specialty Collaboration

Funding Source(s)

Unspecified

Composition of the Group that Developed the Measure

Diagnostic Imaging Measure Development Work Group Members

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National Committee for Quality Assurance: Mary Barton, MD

Financial Disclosures/Other Potential Conflicts of Interest

None of the members of the Diagnostic Imaging Work Group had any disqualifying material interest under the Physician Consortium for Performance Improvement (PCPI) Conflict of Interest Policy.

Endorser

National Quality Forum - None

NQF Number

not defined yet

Date of Endorsement

2014 Dec 23

Measure Initiative(s)

Physician Quality Reporting System

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2015 Feb

Measure Maintenance

This measure is reviewed and updated every 3 years.

Date of Next Anticipated Revision

2018

Measure Status

This is the current release of the measure.

This measure updates a previous version: American College of Radiology, Physician Consortium for Performance Improvement®, National Committee for Quality Assurance. Radiology physician performance measurement set. Chicago (IL): American Medical Association (AMA); 2010 Sep. 45 p.

The measure developer reaffirmed the currency of this measure in March 2017.

Measure Availability

Source available from the [American College of Radiology \(ACR\) Web site](#) .

For more information, contact ACR at 1891 Preston White Drive, Reston, VA 20191; Phone: 703-648-8900; E-mail: info@acr.org; Web site: www.acr.org .

NQMC Status

This NQMC summary was completed by ECRI Institute on February 1, 2008. The information was verified by the measure developer on April 10, 2008.

This NQMC summary was updated by ECRI Institute on April 23, 2009. The information was verified by the measure developer on September 16, 2009.

This NQMC summary was retrofitted into the new template on June 10, 2011.

This NQMC summary was edited by ECRI Institute on April 27, 2012.

Stewardship for this measure was transferred from the PCPI to the ACR. ACR informed NQMC that this measure was updated. This NQMC summary was updated again by ECRI Institute on October 13, 2015. The information was verified by the measure developer on November 19, 2015.

The information was reaffirmed by the measure developer on March 3, 2017.

Copyright Statement

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Production

Source(s)

American College of Radiology (ACR), American Medical Association-convened Physician Consortium for Performance Improvement® (PCPI®), National Committee for Quality Assurance (NCQA). Diagnostic imaging performance measurement set. Reston (VA): American College of Radiology (ACR); 2015 Feb. 58 p. [89 references]

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